RESEARCH CIRCULAR 55 SEPTEMBER 1958

PRICE SPREADS for CORN AND OATS

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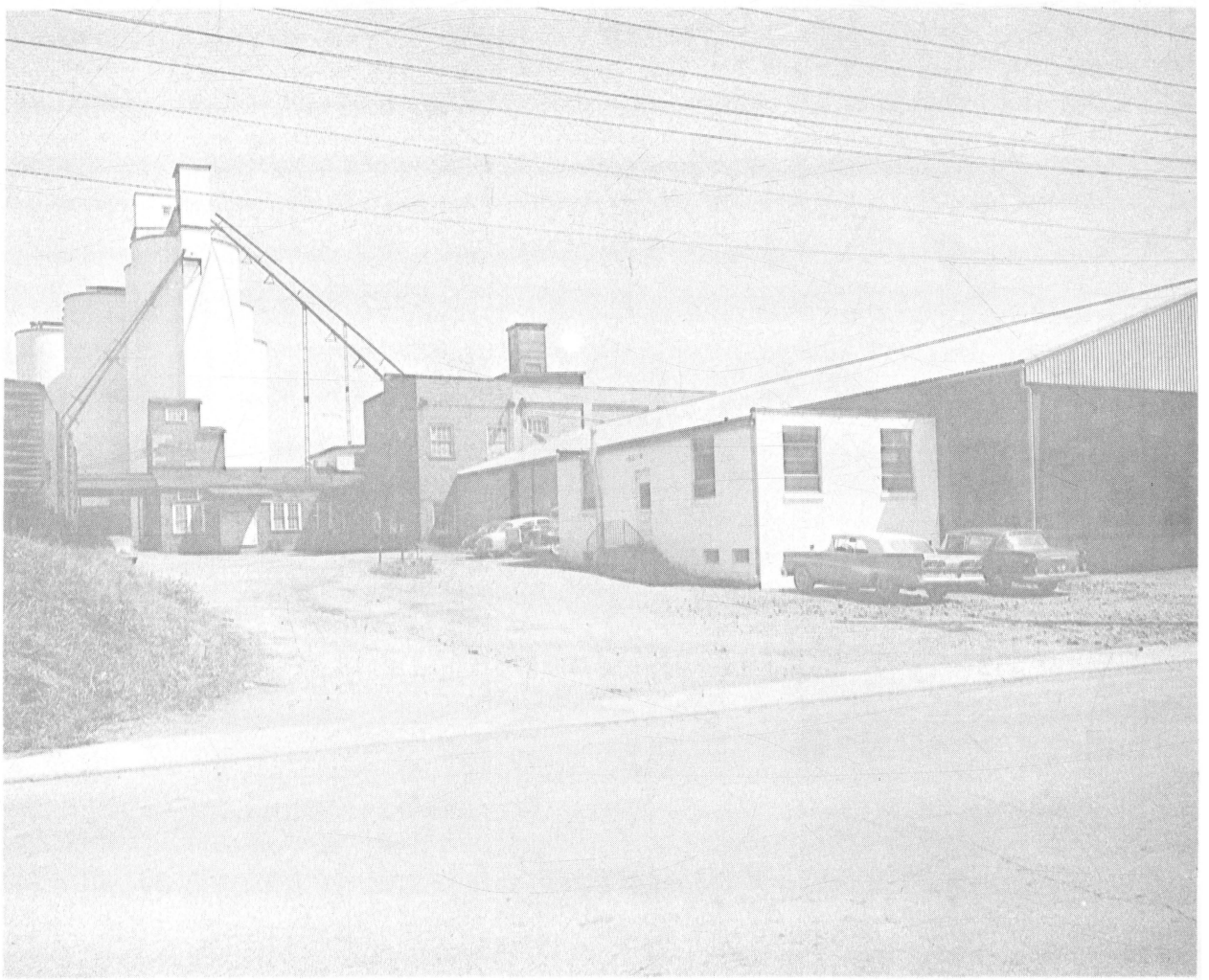

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TABLE OF CONTENTS

INTRODUCTION

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In 1955 Ohio ranked 5th in corn production, 7th in wheat production, 7th in oats production and 6th in soybean production in the United States.

Ohio farmers received $985,592,000 from the sale of all agricultural products in 1955. Over one-fourth ($259,891,000) of the income from sale of all agricultural products in Ohio was derived from the sale of these four grains.

Ohio in general is a surplus grain producing state. There are, however, deficit feed grain areas within the state - particularly the Northeastern Dairy Section. Western Ohio represents the major surplus grain producing area in Ohio.

The Western Ohio farmer has a number of outlets for his surplus grain. The most important of these is the country elevator.

The local or country elevator handles from 69% of the total soybeans marketed to 83% of the wheat marketed by Ohio farmers. Other outlets for the farmers' surplus grain are truck terminals, feed manufacturers, oil processors, food processors, and trucking concerns that haul directly to Southern and Eastern markets.

Local elevators serve as assembly points for small lots of grain from thousands of individual farmers. The total volume of grain handled is small compared to terminals and the cost per bushel of handling will be larger.

Local elevators perform many other services in the local community. They are most often a combination of elevator facility, feed mill, seed store, and farm supply store. The extent of diversification and the relative importance of each function varies widely over the state.

The local elevators also have a number of outlets for the grain they buy from the farmers. The most important link between the local elevator and the final destination is the terminal elevator facility.

Terminal elevators are primarily reservoirs for grain and perform three essential functions in the marketing of surplus grain. First, the terminals prepare the grain for storage by drying, blending and generally conditioning

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it. Second, the terminals provide storage for the surplus grain until it is needed by processors. Third, they act as wholesalers selling grain in car-lots to users throughout the year.

Table I

Production of Corn, Wheat, Oats, and Soybeans, Bushels Marketed, Bushels Handled by Country Elevators, and Percentage of Ohio Surplus Grain Handled by Country Elevators, 1954.

(000 Bushels)

Grain	Production	Amount Mkt.	Volume Handled by Country Elevator	Percent Handled by Country Elevator
Corn	232,066	79,615	62,465	78.5
Wheat	48,510	39,284	32,636	83.2
Oats	56,684	14,738	12,007	81.5
Soybeans	29,708	28,124	19,340	68.8

Source: Unpublished Data, Department of Agricultural Economics, Ohio State University.

Of the four major grains produced on Ohio farms, wheat and soybeans are considered to be cash grains. They are sold as cash crops and a very small percent of these two grains are utilized as feed in their raw form. Hence, local supply and demand conditions have little effect on their price.

Corn and oats prices in Ohio are dependent upon the overall market situation as well as local supply and demand conditions within the area.

PURPOSE AND OBJECTIVES

The price received by the farmer for his surplus corn and oats is dependent upon two major factors: (1) the base price quoted for these grains, and (2) discounting practices used for moisture, test weight, and foreign material. This study shall be concerned only with number 1 above, or differences in quoted prices for trading grades of corn and oats at local and terminal elevators in Ohio. Differences that occur in discounting practices throughout the state will be treated

in a separate study.

The purpose of this study is to examine historical price data at various levels of marketing in Ohio, to determine price spreads between the Chicago cash, terminal elevator, and local elevator corn and oats prices. These price spreads shall be analyzed to determine: (1) the extent these price spreads vary from area to area, and (2) the extent these price spreads vary from season to season in each area.

METHODS USED IN ANALYSIS

Geographic Areas Considered - The major markets for all surplus grain moving out of Ohio are Pittsburgh, Buffalo, Philadelphia, New York, and other points to the East and South. All terminal bid prices for grain are based on the Chicao market price adjusted by differences in freight rates from point of origin to the Eastern seaboard.

Terminal elevators are defined in this study as elevators that receive over 50% of their grain from other elevators and have storage facilities in excess of 200,000 bushels. Terminal elevators in Ohio are located in the larger cities that have rail facilities. All of the four areas shown in Fig. I, do not have terminal facilities and consequently some other geographic breakdown is necessary for the comparison of terminal elevator prices.

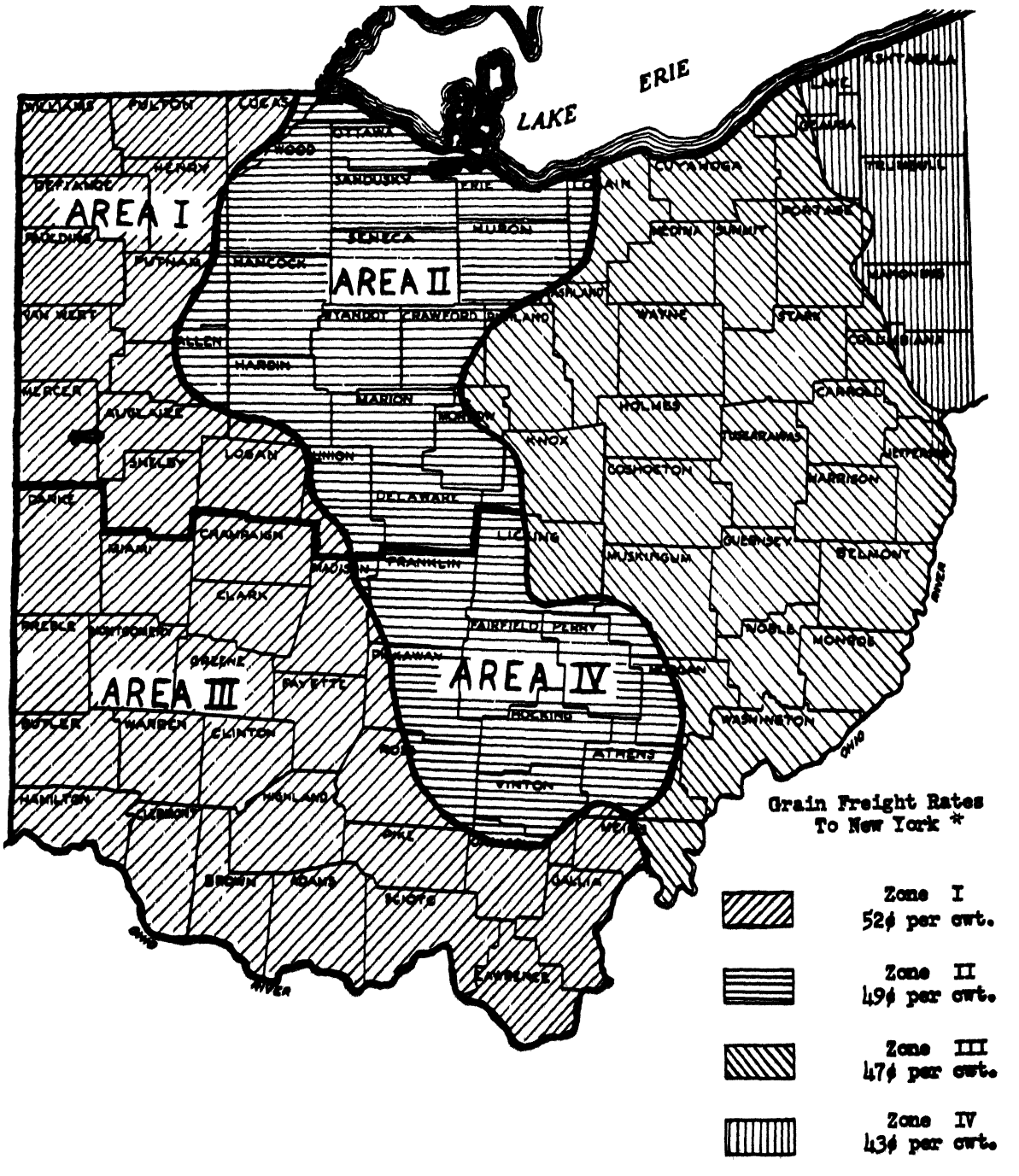
The majority of terminal elevator activity in Ohio is centered in Toledo, Columbus, and Cincinnati. In this analysis the terminal facilities are referred to as Northern, Central, or Southern.

As shown in Fig. I, there are four rate zones in Ohio for corn moving to New York. This report shall be concerned with the 52 cent and 49 cent rate zones. These rate break lines form logical East-West boundries for the geographical areas considered in this report.

In addition to the East-West division of the state by freight zones, each zone was subdivided arbitrarily into a North and South area. These four areas,

Fig. I

GRAIN FREIGHT RATE ZONES AND SELECTED
MARKETING AREAS IN OHIO



*As of December 29, 1955

indicated as Areas I, II, III, and IV in Fig. I, are referred to as Northwestern, North Central, Southwestern, and South Central. These four geographic areas are used in comparing local elevator prices.

Terminal Price Data - Terminal bids are called or mailed to country elevators after the close of the Chicago Board of Trade each day. These bids represent a firm offer to buy if accepted by the country elevator before the opening of business the next trading day. Terminal bid prices are quoted on No. 1 soybeans and No. II corn, oats and wheat. These bids are quoted F.O.B. the country point and normally will include prices for each freight zone in the trading area of the terminal.

Daily bid prices have been collected from six terminal elevators in Ohio for the five-year period January 1, 1951 to December 31, 1955. These prices were obtained from daily bid cards or ledgers supplied by the owners or operators of the facilities studied.

Local Price Data - Daily local elevator grain prices have been collected from 15 local elevators in Ohio for the same five-year period. These bid prices represent prices paid to farmers for trading grades of grain. These prices do not take into account discounts or premiums. Local elevator prices were copied from ledgers supplied by the owners or operators of the elevators used in this study.

No standard method of sampling could be used in selecting representative country elevators. Only a small percentage of the elevators contacted had daily five-year price records. The four areas shown in Fig. I were canvassed and price data from at least three elevators in different parts of each area were obtained. Prices were obtained from elevators handling an above average volume of grain.

It is assumed that elevators within a given area have similar pricing practices as a result of competition. The object of this study is to show seasonal and geographical differences in quoted prices between areas. No attempt will be made to show local price differences within a given area.

Geographical Price Variation - The following computations were made to show price differences in various areas of the state:

(1) Monthly averages were computed from daily prices for each geographic area.

(2) Price spreads for terminal elevators were computed by subtracting monthly average terminal bid price in each area from the monthly average Chicago cash price.

(3) Price spreads for local elevators were computed in the same manner except that terminal elevator bid prices in the same area were used as a base (instead of Chicago cash price).

(4) A twelve-month moving average for the above monthly price spreads were plotted for each grain in each geographic area. The reason for using a moving average was to smooth out extreme price fluctuations and to eliminate the effect of seasonal variations.

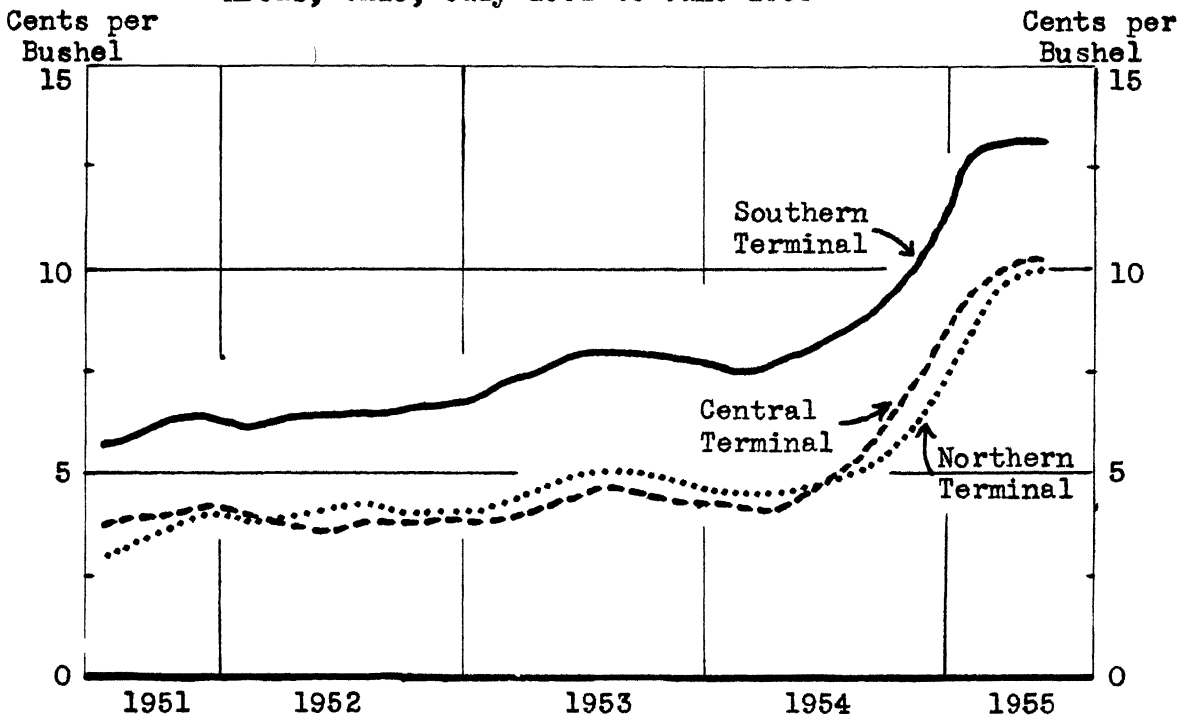
Seasonal Price Variation - In the initial survey it appeared that price spreads tend to vary seasonally. In other words the spread between local and terminal prices seem to increase at harvest time for the various grains. To explore this assumption a seasonal pattern of prices has been plotted for each grain, for each area, for the five-year period studied. Seasonal graphs show the price spread above or below the yearly average for each month of the year.

CORN

Geographic Variations in Terminal Price Spreads - Any change in the overall supply-demand conditions in the corn market will normally be reflected at all levels of marketing. The degree of sensitivity will vary at different levels. The Chicago Board of Trade functions as the equator of Eastern market demands and the Mid-Western supply of corn. Any changes in the corn market will usually be reflected at Chicago. Other levels of marketing will follow the Chicago price with certain limitations.

Price spreads at the Northern and Central terminals were almost identical over the five-year period. The Southern terminal follows the same pattern but

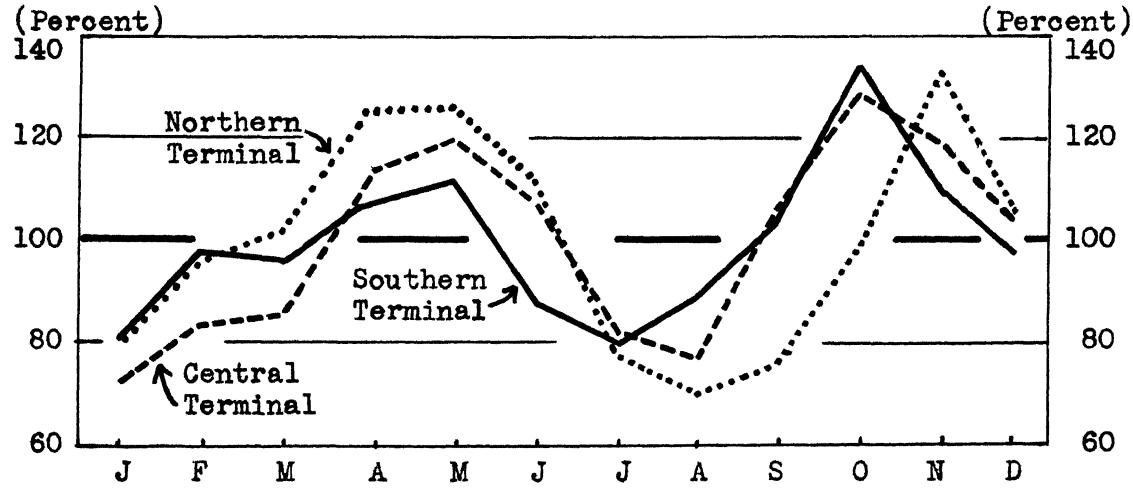
Chart I - Average* Spread Between the Chicago Cash Price and Terminal Elevator Prices for Corn, by Selected Areas, Ohio, July 1951 to June 1955



* Twelve-month moving average used to remove seasonal variation.

SOURCE: Derived from Appendix Table I

Chart II - Average Monthly Variations* in the Spread Between the Chicago Cash and Terminal Bid Prices for Corn, by Selected Areas, Ohio, 1951-1955



* Expressed as a percent of the yearly average.

SOURCE: Derived from Appendix Table I

remains 3 cents above the other two. (Chart 1)

The Eastern seaboard is the normal market for surplus corn from Ohio. The Southern terminals are in the 52 cents per hundred weight freight zone and the Northern and Central terminals are in the 49 cent rate zone. (See Fig. I).

Terminals in rate Zone II have a freight advantage of 1 3/4 to 2 cents per bushel on corn moving to the Eastern seaboard. The additional 1 to 1 1/4 cent higher spread at Southern terminals may be accounted for in transit privileges of Zone II through Toledo to Eastern markets. Taking into account the freight rate structure in Ohio, the Northern, the Central, and the Southern terminals have almost identical price patterns.

The spread between the Chicago price and terminal prices has been increasing in all areas studied over the five-year period. The rapid increase in spreads during the 1954 crop year was probably due to the short crop in the Western half of the corn belt that year.

Table II

Hundred Weight and Bushel Freight Rates for Corn Shipped to Eastern Markets from Rate Zones in Western Ohio, 1955.

Market	Cents per Hundred Weight		Cents per Bushel	
	Zone I	Zone II	Zone I	Zone II
New York	52	49	30	28-1/4
Boston	54	51	31-1/8	29-3/8
Philadelphia	50	46-1/2	28-7/8	26-7/8
Baltimore	49	45-1/2	28-1/4	26-1/4
Virginia City	49	45-1/2	28-1/4	26-1/4

Source: Published Rail Freight Rates as of December 29, 1955.

A short crop in Iowa, when the Ohio crop is normal, will cause the Chicago price to rise above the Toledo price. As this shortage becomes acute and feeders

and manufacturers in the Western corn belt run short of corn, the Chicago price will rise above the Toledo price by such a margin as to attract corn to move west into the temporary deficit area. In October, 1954, the spread between Chicago and Toledo reached 17 cents per bushel which was equal to the local freight rate from Toledo to Chicago. As a result, some corn moved from Western Ohio to Chicago to relieve this demand. This very unusual westward movement of corn continued periodically until July, 1955.

Seasonal Variation in Terminal Price Spreads - Price spreads between the Chicago price and terminal elevator prices vary seasonally as shown in Chart II. The two periods of relatively high spreads occur in the Spring and Fall and the low spreads occur in the Summer and Winter.

The greatest spread between the Chicago cash price and the terminal bid price occurs in November in the North and October in the Central and Southern sections of the state. Part of this is a result of heavy marketings following the harvest season and a consequent jamming of transportation and drying facilities. The harvest season is from two weeks to one month earlier in the Central and Southern sections of the state. This may account for the month lag in the Northern terminal spreads.

July and August represent the period of low terminal spreads and reflects the result of terminals bidding for a small free supply of corn. The demand for corn for industrial purposes is relatively stable throughout the year and the demand for feed increases in the summer as feeders run short. This, in addition to a small free supply of corn, probably contributes to the low spreads during this period.

The monthly index of terminal price spread, expressed in percent of the yearly average, varies from 70 percent in summer to 130 percent in the fall. In 1951 the yearly average spread was 3 cents per bushel with a range in spread from 2 cents in the summer to 4 cents in the fall. It should be remembered that the seasonal

index is recorded in percent and should not be confused with the actual cents per bushel spread.

LOCAL ELEVATOR CORN PRICE SPREADS

Geographical Variations in Local Elevator Price Spreads - Price spreads between terminal elevator bid prices and local elevator quoted prices have fluctuated considerably more than price spreads between the Chicago and terminal bid prices. There have been wide variations between the four areas as well as intra-area fluctuations over the five-year period. (See Chart III.)

The Northwestern, North Central, and Southwestern areas have virtually the same five-year average spread. However, yearly averages for these three areas vary as much as 3¢ per bushel. Spreads in the South Central area have averaged about 1/2 cent per bushel higher than the other three areas over the five-year period.

Monthly average spreads show a much greater range than the yearly averages. Monthly spreads, for example, ranged from 2 cents to 15 cents per bushel in the Southwestern area in 1951. Even greater variations occur in weekly and daily spreads.

As shown in Chart III, the Northwestern and North Central areas have experienced decreasing spreads while price spreads in the Southwestern and South Central areas have been increasing. Several factors may account for these changes:

1. The increased use of truck terminal facilities in the northern half of the state have probably contributed to the lower spread. These facilities have been able to operate on a lower spread for three major reasons.
   (a) large volume enables them to handle grain at a lower cost per bushel,
   (b) their volume and storage capacity is sufficient to allow blending, and
   (c) they handle grain in sufficient quantity to facilitate direct shipment to processors.
2. A greater number of elevators in the northern half of the state have ex-

panded and modernized their facilities over the past 10 years. Savings may be passed on to the farmer as a result of competition among elevators to operate these new facilities at capacity.

3. Competition has increased as a result of improved farm transportation. A farmer with his own truck can easily haul grain an additional 50 miles for a more favorable price. This is equally true in Southern Ohio, but there are fewer elevators within a given radius.

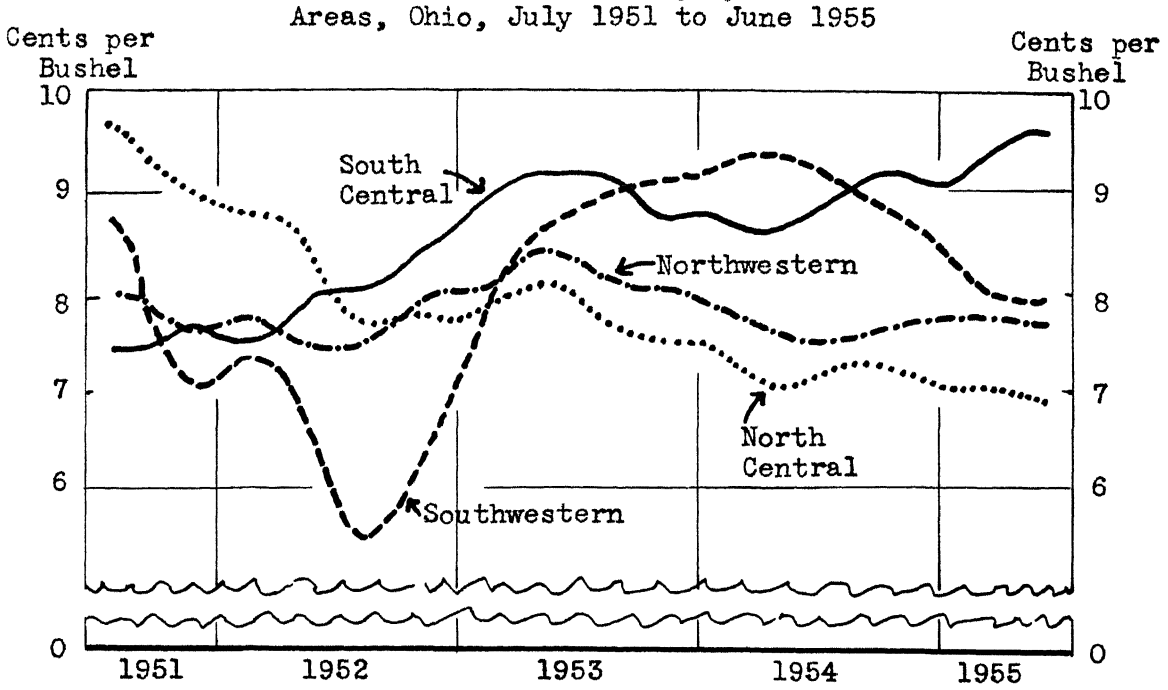
In regard to the trend of price spreads, each area has its own peculiarities as indicated in Chart III.

The Southwestern area witnessed the greatest fluctuation in price spreads. This can probably be attributed to this area shifting from a deficit to a surplus area. Historically this has been a deficit corn area. In the last few years, Southwestern Ohio has been exporting corn. When it is necessary to import corn into this area the importing price will be approximately equal to the terminal bid price. As a result, when corn is needed locally, the local elevator will bid up to (or slightly above) the terminal bid price.

Seasonal Variations in Local Corn Price Spreads - Price spreads at local elevators are lowest just prior to harvest and highest during the harvest season. Several factors can account for this:

1. The risk of spoilage increases greatly when the moisture content is high.
2. Shelling costs are normally included in the price spreads. These costs increase when corn is high in moisture.
3. Drying, storage, and transportation facilities are overloaded during this period, often requiring additional handling.
4. The free supply of corn is normally lowest just prior to harvest and highest during the harvest. Therefore in areas with a constant local demand the spread will normally vary directly with the free supply of corn.

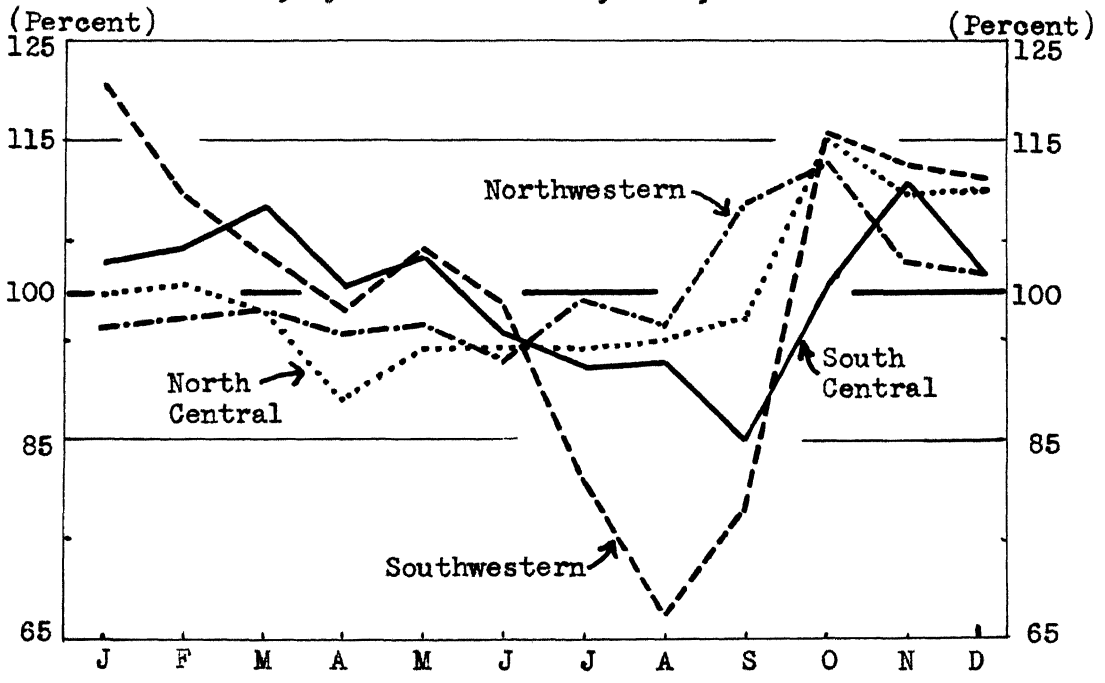
Chart III - Average* Spread Between Terminal Bid Price and Local Elevator Prices for Corn, By Selected Areas, Ohio, July 1951 to June 1955



* Twelve-month moving average used to remove seasonal variation.

SOURCE: Derived from Appendix Table I

Chart IV - Average Monthly Variation* in the Spread Between the Terminal Bid Price and Local Elevator Prices for Corn, By Selected Areas, Ohio, 1951-1955



* Expressed as a percent of the yearly average.

SOURCE: Derived from Appendix Table I

These general periods of high and low spread will vary in intensity in various areas. Chart IV indicates that the Southwestern area has the greatest fluctuation. The fact that this is a heavy feeding area probably accounts for the unusually low spreads just prior to harvest. The local elevators are bidding for the small free supply of corn to meet local needs.

OATS

Geographical Variations in Terminal Oats Spreads - Spreads between the Chicago cash and Ohio terminal oats prices have varied between 1¢ and 2¢ per bushel at Northern and Central terminals from 1¢ to 3.7¢ per bushel at Southern terminals. (Chart V) Northern and Central terminals have had almost identical price spreads over the five year period. Since July 1952, the Southern terminals have had steadily increasing spreads while the Northern and Central terminal price spreads remained relatively steady.

As in the case of corn, rail rates to Eastern markets have an effect on terminal bid prices.

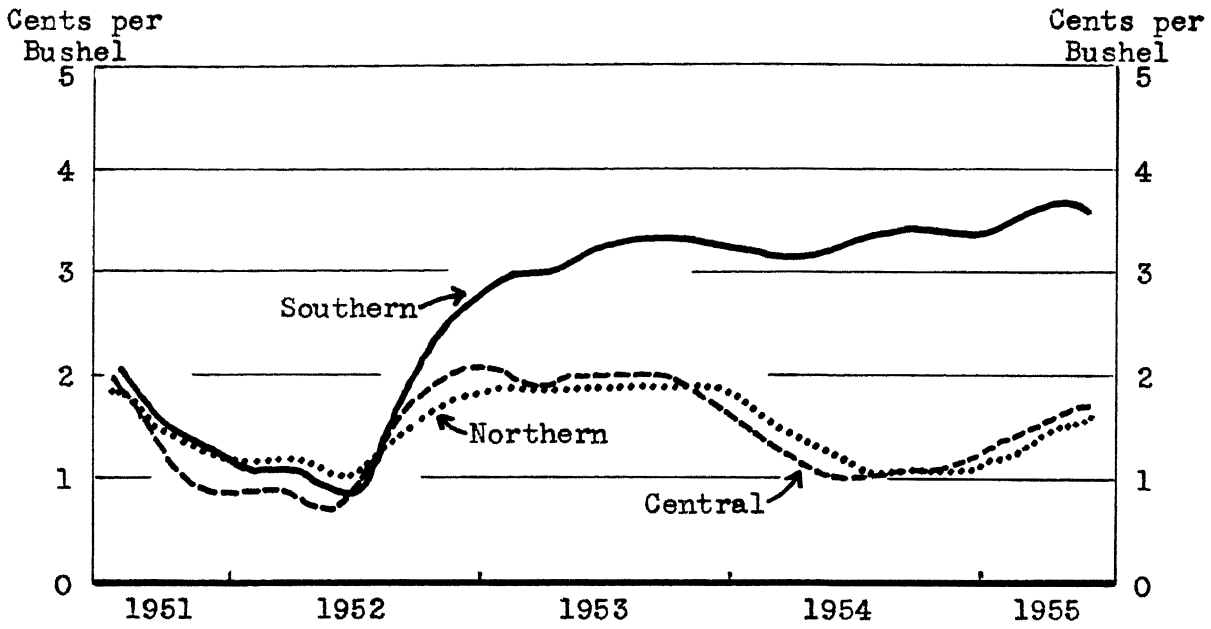
Table III

Hundred Weight and Bushel Freight Rates for Oats Shipped to Eastern Markets from Rate Zones in Western Ohio, 1955

Market	Cents per Hundred Weight		Cents per Bushel	
	Zone I	Zone II	Zone I	Zone II
New York	52	49	16 5/8	15 5/8
Boston	54	51	17 1/4	16 3/8
Philadelphia	50	46 1/2	16	14 7/8
Baltimore	49	45 1/2	15 5/8	14 5/8
Virginia City	49	45 1/2	15 5/8	14 5/8

SOURCE: Published Rail Freight Rates as of December 29, 1955.

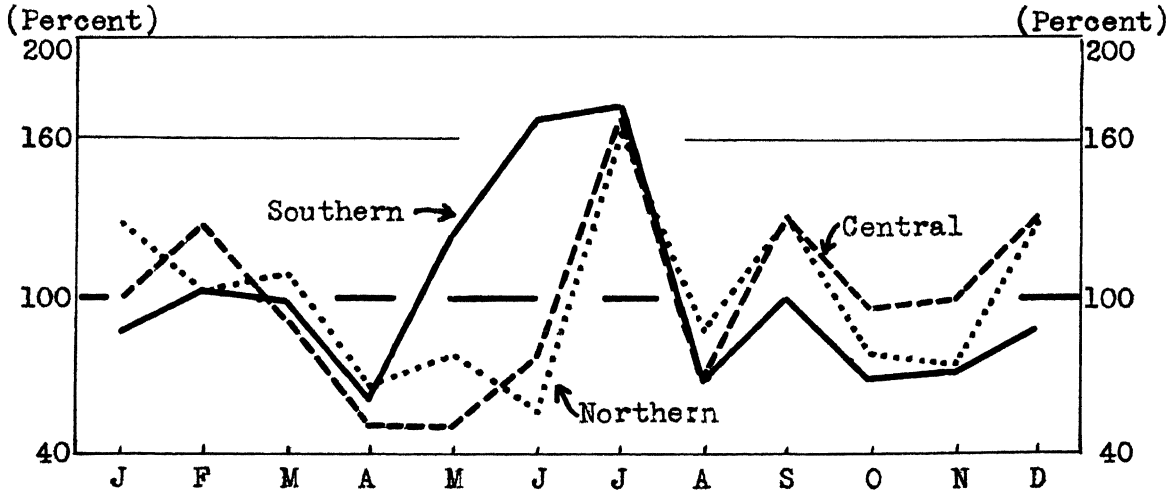
Chart V - Average* Spread Between the Chicago Cash Price and Terminal Elevator Prices for Oats, By Selected Areas, Ohio, July 1951 to June 1955



* Twelve-month moving average used to remove seasonal variation.

SOURCE: Derived from Appendix Table I

Chart VI - Average Monthly Variation* in the Spread Between the Chicago Cash and Terminal Bid Prices for Oats, By Selected Areas, Ohio, 1951-1955



*Expressed as a percent of the yearly average.

SOURCE: Derived from Appendix Table II

Northern and Central terminals are in Zone II and have approximately 1¢ per bushel advantage on shipments to Eastern markets. (Table III)

Southern terminal spreads have ranged from 1 1/2 to 2 1/2 cents higher since 1952. The 1 cent freight advantage of Northern and Central terminals still leaves 1/2 to 1 1/2 cents per bushel higher spread (lower price) unexplained.

It is interesting to note that the production of oats has increased greatly in Southwestern Ohio since 1953. For example: In 1954 and 1955 Crop Reporting District VII produced 3,083,000 and 3,089,000 bushels of oats respectively. This compared to 1,560,000 and 1,643,000 bushels for the same district in 1952 and 1953 indicates that production has almost doubled in Southwestern Ohio since 1953. This increase in production may have a bearing on the Southern terminal spreads.

Seasonal Variation in Terminal Oats Spreads - All areas studied follow the same general seasonal pattern. As in the case of corn, the highest terminal spreads occur during the harvest season and the lowest spreads during the period just prior to harvest. (Chart VI) Southern terminals lead the other two areas in increasing their price spreads to earlier harvest in that area. In April and May the price spread has been approximately 50% of the yearly average, while June and July averaged 160%. On a 2¢ yearly average this would mean a range from 1 cent in May to 3 1/4 cents in July.

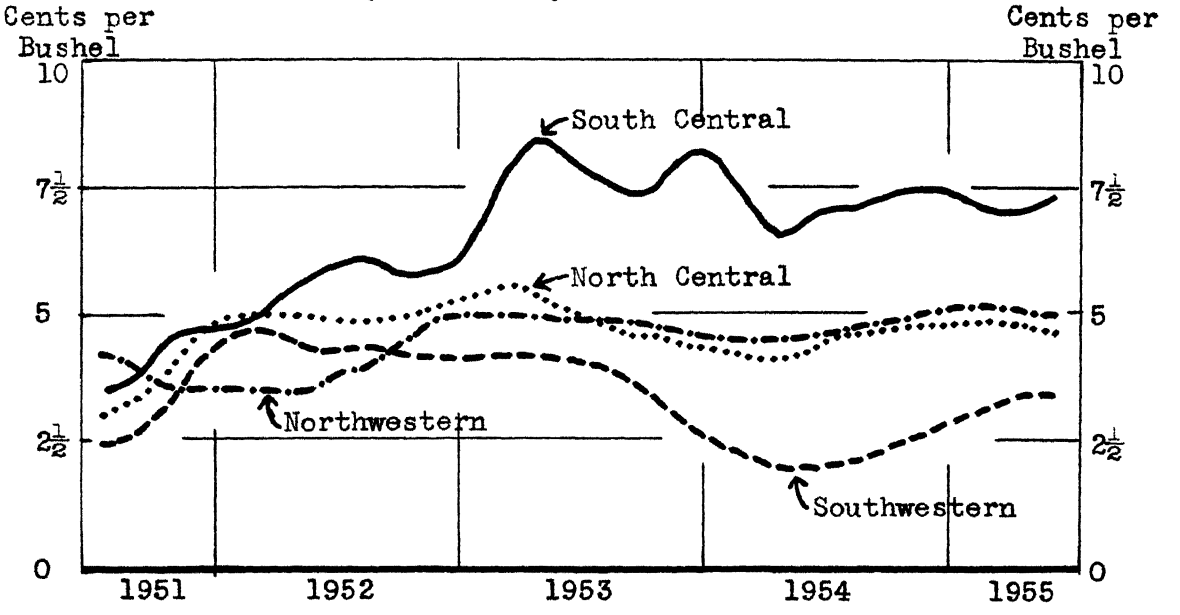
LOCAL ELEVATOR OATS PRICE SPREADS

Geographical Variations in Local Oats Margins - North Central and Northwestern elevators have had almost identical price spreads since 1952. The spread between the terminal price and the local elevator oat price has remained near 5¢ per bushel for these two areas since 1952.

Local elevators in Southwestern Ohio have had the smallest spread and South Central elevators have had the largest spread since 1952. (Chart VII)

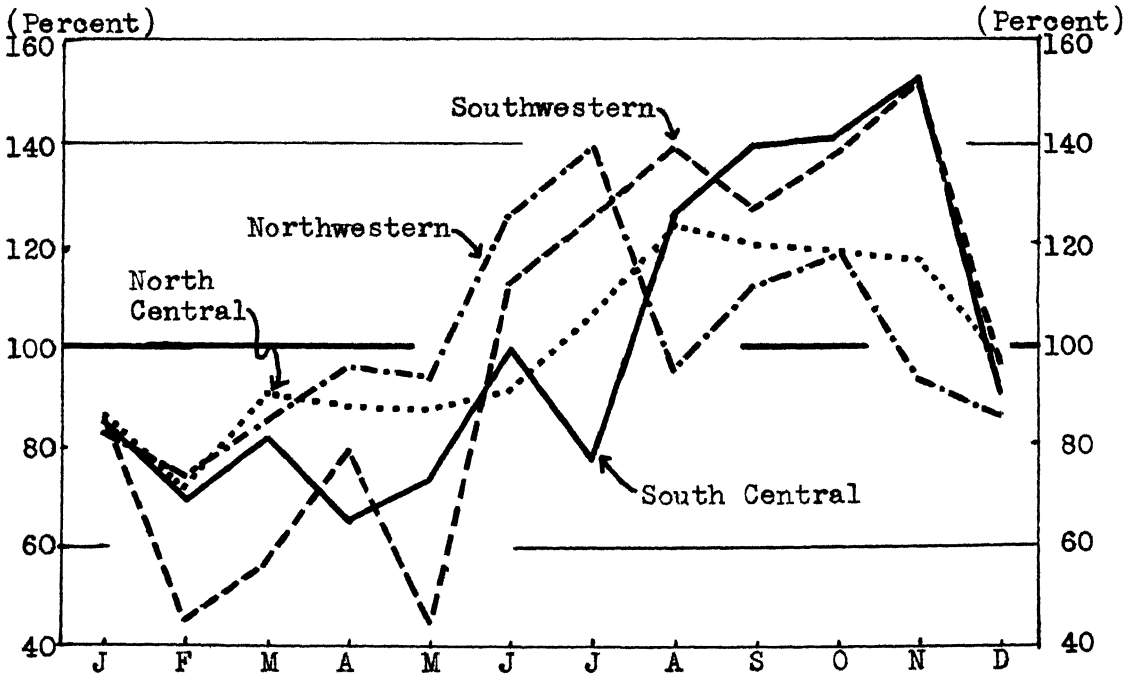
Southwestern and South Central elevators have shown greatest fluctuations in price spreads over the five year period. Variations in local feeding demands and

Chart VII - Average* Spread Between Terminal Bid Price and Local Elevator Prices for Oats, By Selected Areas, Ohio, July 1951 to June 1955



*Twelve-month moving average used to remove seasonal variation.
SOURCE: Derived from Appendix Table I

Chart VIII - Average Monthly Variation* in the Spread Between the Terminal Bid Price and Local Elevator Prices for Oats, By Selected Areas, Ohio, 1951-1955



*Expressed as a percent of the yearly average.
SOURCE: Derived from Appendix Table II

the extreme variations in production probably cause the price spreads to vary more in the southern sections of Ohio. As in the case of corn, if local feeders run short of oats, the country elevators will bid up to the terminal price to supply local feeding needs. Conversely, it is possible that the Southern elevators do not have stable outlets for surplus oats due to the wide fluctuation in supply in that area.

Seasonal Variation in Local Elevator Oats Spreads - Seasonal variation in local elevator price spreads are more erratic than those found in the case of terminals. However, the same general pattern prevails. (Chart VIII) The period of lowest spreads occur from December through May. The highest spreads from June through November.

Southwestern and South Central elevator spreads remain high from harvest through November while Northwestern and North Central spreads level off after harvest. The large increase in the production of oats in Southern Ohio since 1953 has probably caused the depressed prices (higher spreads) following harvest in these two areas.

Monthly price spreads have varied from 45% to 150% in Southwestern Ohio. This applied to a 3¢ yearly average spread means a 1.4¢ spread in May and 4 1/2¢ per bushel spread in November. The other three areas have less seasonal variation.

CONCLUSIONS

Several generalizations can be made in regard to the corn and oats price spreads at the various levels of marketing in Ohio.

1. Terminal elevator prices are apparently very competitive. When the freight rate structure is considered, all areas have nearly identical price spreads.
2. There are geographical variations in the local corn and oats price spreads. Economic justification of these differences can be made in some cases.
3. The price spreads at local and terminal elevators show seasonal variation in all areas studied.

The farmer with surplus grain to market can do little about the inter-area variations in price spreads. Transportation costs generally prohibit the farmer from taking advantage of favorable price spreads at distant markets.

The seasonal price spread variations within a given area may offer the farmer an opportunity to select a favorable season for marketing his surplus corn and oats. Variations in price spreads that are a result of the increased risks involved in handling and storing high moisture corn would have to be assumed by the farmer if he stored this corn on his farm. Those increased costs due to overloading storage, drying, and transportation facilities at harvest could be avoided if the farmer has satisfactory storage facilities on his farm.

The greatest price spreads occur at harvest and continue above the yearly average for about three months there-after. One to two months prior to harvest the spreads drop to their lowest point. About 1/2 of the total differential disappears three to four months after harvest. Regarding the seasonal variation in price spreads, it appears that the greatest saving could be made by storing corn or oats until the harvest rush is over. The net amount of this saving will depend on the farm storage facilities available or the cost of building and maintaining these facilities.

A P P E N D I X

Appendix Table I

Spread Between the Chicago Cash, Terminal Elevator, and Local Elevator Corn Prices, by Selected Areas, by Month, Ohio, 1951-1955

(Spread in cents per bushel)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1951							
January	.9	.3	3.6	7.6	9.9	13.8	8.7
February	1.6	1.2	4.5	8.4	11.0	14.6	8.8
March	1.8	1.8	4.2	8.8	10.8	13.3	6.8
April	2.8	2.8	5.2	8.4	8.7	7.4	7.5
May	3.8	3.2	5.4	6.6	7.9	3.5	7.0
June	4.7	4.7	7.3	3.8	7.9	2.2	9.0
July	4.3	6.0	8.4	9.0	8.8	2.2	6.4
August	2.8	4.1	5.8	9.1	7.6	2.5	6.9
September	2.1	4.9	5.3	9.0	6.8	5.6	5.7
October	3.2	7.8	7.8	8.6	11.6	13.3	4.3
November	4.6	4.7	5.7	8.5	13.0	14.7	8.5
December	3.2	3.3	5.7	8.5	12.9	14.0	8.9
Yearly Average	3.1	3.7	5.7	7.9	9.6	8.7	6.5

Appendix Table I (continued)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1952							
January	1.9	1.4	4.4	8.2	9.4	11.7	9.2
February	4.1	2.0	5.7	6.4	7.7	5.3	8.0
March	5.1	3.0	6.0	6.8	7.6	6.7	9.6
April	5.1	4.1	6.6	5.7	6.8	3.9	7.6
May	5.3	4.5	7.5	7.5	7.8	3.7	8.5
June	4.3	4.0	5.6	7.5	7.5	4.0	6.2
July	3.6	3.4	5.5	7.4	7.4	3.4	5.5
August	3.0	3.2	4.9	7.1	7.6	.1	7.4
September	3.1	3.2	7.4	7.7	7.6	3.6	8.1
October	4.6	3.8	8.7	8.4	6.4	8.0	8.3
November	6.4	6.0	8.4	8.7	8.0	7.4	10.0
December	2.6	3.1	5.5	8.9	8.7	8.0	8.6
Yearly Average	4.1	3.5	6.4	7.5	7.8	5.2	8.1

Appendix Table I (continued)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1953							
January	3.9	3.7	5.7	8.2	8.2	8.5	7.7
February	3.6	3.3	6.8	8.3	8.5	8.9	9.7
March	2.8	2.1	5.8	7.9	8.5	9.6	11.4
April	5.2	4.2	6.8	7.9	7.1	9.3	10.2
May	6.3	5.6	8.1	7.7	7.2	9.3	8.9
June	4.8	3.8	6.5	7.6	7.0	9.0	8.3
July	1.8	2.1	5.4	8.4	8.2	8.7	9.1
August	3.5	3.5	7.6	8.2	8.6	8.3	9.6
September	4.4	6.2	13.9	9.9	9.2	7.3	8.5
October	3.5	4.3	8.3	10.5	8.6	8.8	8.9
November	7.6	5.6	9.7	6.9	6.5	9.3	9.7
December	5.9	5.3	7.9	6.8	6.9	9.6	8.4
Yearly Average	4.4	4.1	7.7	8.1	7.6	8.8	9.2

Appendix Table I (continued)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1954							
January	4.6	4.0	6.8	7.3	6.5	9.6	8.1
February	5.2	5.0	7.1	7.3	6.9	10.2	8.0
March	4.4	4.6	6.7	7.8	7.4	9.5	7.8
April	5.4	4.8	7.4	7.4	6.7	8.4	8.9
May	4.4	4.0	6.2	7.4	6.8	10.6	9.7
June	3.9	4.1	6.3	7.2	7.2	9.5	8.9
July	1.9	1.5	4.1	7.3	6.8	9.7	9.2
August	2.0	1.9	4.4	7.1	6.5	10.1	7.5
September	3.8	4.5	10.0	7.9	6.9	8.8	6.3
October	6.7	7.7	17.1	8.8	9.6	5.8	12.2
November	5.5	5.9	7.9	7.6	7.4	9.5	9.8
December	10.1	10.5	12.8	7.3	6.6	7.1	9.5
Yearly Average	4.8	4.8	8.1	7.5	7.2	9.0	8.8

Appendix Table I (continued)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1955							
January	5.7	5.6	7.5	7.3	6.9	10.2	10.5
February	6.3	7.4	10.6	8.3	7.7	8.4	9.4
March	9.2	10.0	11.7	8.2	6.6	8.1	8.9
April	11.5	13.0	14.0	8.3	6.7	8.1	8.0
May	12.0	12.2	13.7	7.3	6.8	7.8	9.6
June	14.5	14.1	16.2	7.1	6.4	7.2	9.3
July	14.6	14.1	15.5	7.1	5.9	7.2	8.5
August	9.1	9.4	12.4	7.3	6.9	6.2	8.9
September	8.5	8.6	13.8	8.1	7.2	8.8	10.7
October	9.1	9.7	13.5	7.6	7.9	8.3	11.7
November	9.3	8.6	11.4	8.0	6.7	6.9	10.2
December	8.4	8.0	10.1	7.3	7.1	7.9	9.6
Yearly Average	9.9	10.1	12.6	7.6	7.2	7.9	9.6

SOURCE: Original Data.

Appendix .Table II

Spread Between the Chicago Cash, Terminal Elevator, and Local Elevator Oats Prices, by Selected Areas by Month, Ohio, 1951-1955

(Spread in cents per bushel)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1951							
January	.3	.0	.4	4.3	1.4	3.8	12.8
February	2.0	1.1	1.3	4.2	2.0	2.2	10.0
March	1.7	1.2	.7	4.8	.6	.2	- .2
April	.9	4.4	.5	4.4	-1.5	-4.1	- 3.0
May	1.5	.7	1.1	2.0	-2.0	.1	1.3
June	1.5	1.8	3.1	4.4	.8	.9	5.2
July	3.1	4.7	5.9	6.6	3.9	2.0	2.2
August	1.4	1.2	.9	4.6	5.1	4.7	3.3
September	2.8	2.8	2.6	5.5	5.4	5.1	3.1
October	3.0	3.6	3.2	5.5	5.7	6.0	5.0
November	2.3	1.9	2.7	3.5	7.5	8.7	10.0
December	2.3	1.6	2.8	1.8	5.2	1.0	2.9
Yearly Average	1.9	2.1	2.1	4.0	4.1	2.6	4.4

Appendix. Table II (continued)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1952							
January	.4	.6	.7	2.7	4.4	2.5	5.6
February	-1.1	-1.9	-2.1	1.6	3.4	4.2	6.4
March	-1.3	-2.3	-2.3	1.9	5.1	4.8	9.9
April	- .1	-1.4	-2.4	2.5	3.4	4.4	3.2
May	.0	- .5	- .7	2.2	4.7	3.4	-1.6
June	1.6	1.6	4.4	5.3	3.8	6.1	6.5
July	2.0	3.0	3.3	6.4	5.6	5.3	3.2
August	1.5	1.9	1.6	3.0	5.7	4.6	4.4
September	2.9	3.0	2.6	5.2	5.7	4.8	8.6
October	2.3	2.1	2.0	6.1	6.4	5.5	8.9
November	.6	.7	.8	4.1	5.3	3.9	9.8
December	1.9	2.6	1.8	5.2	5.4	4.1	9.5
Yearly Average	.7	.7	.8	3.7	4.9	4.5	6.5

Appendix Table II (continued)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1953							
January	3.2	2.9	3.0	3.9	4.1	2.8	6.0
February	1.3	1.0	2.6	3.8	4.4	2.5	4.8
March	2.2	2.0	3.9	4.9	4.9	3.0	5.3
April	1.1	1.0	3.5	5.4	5.0	4.9	4.5
May	1.8	2.2	1.8	5.2	4.9	1.7	1.0
June	.5	1.4	7.2	7.1	6.3	6.8	2.3
July	4.3	4.6	4.8	5.6	6.2	4.7	10.5
August	1.7	1.8	2.7	5.0	6.8	5.6	16.7
September	.8	1.1	2.3	4.6	5.7	4.9	15.4
October	1.1	1.1	1.6	4.3	4.6	4.6	16.8
November	2.1	2.1	2.4	4.2	3.9	2.8	7.7
December	2.8	2.9	3.7	4.4	3.4	3.4	2.5
Yearly Average	2.0	2.1	3.4	4.8	5.2	4.0	7.7

Appendix Table II (continued)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1954							
January	2.3	2.2	2.9	4.1	3.9	2.8	5.5
February	2.6	2.1	4.1	3.8	3.1	- .4	3.4
March	1.6	1.5	3.0	3.9	3.8	- .1	1.7
April	1.1	1.0	2.4	4.3	4.2	.4	3.5
May	1.1	.5	4.1	4.7	3.9	.4	8.6
June	1.0	1.3	5.9	4.9	4.3	.8	8.9
July	1.4	1.5	4.4	5.8	3.4	318	5.7
August	.1	- .2	1.5	4.6	4.7	2.7	10.1
September	- .7	- .5	1.9	4.4	5.2	1.9	10.7
October	.6	.7	2.3	4.8	5.9	2.6	6.9
November	.0	- .4	3.6	5.0	6.2	5.0	11.6
December	1.3	1.5	3.2	4.9	5.7	3.8	8.9
Yearly Average	1.1	1.0	3.3	4.5	4.6	2.0	7.1

Appendix Table II (continued)

Month	Spread Between Chicago Cash and Terminal Elevator Price			Spread Between Terminal and Local Elevator Price			
	Northern Area	Central Area	Southern Area	North-western Area	North-central Area	South-western Area	South-central Area
1955							
January	2.7	2.9	4.0	4.6	5.0	3.2	5.1
February	2.6	3.1	4.9	4.8	3.7	.9	3.1
March	1.7	2.0	3.3	5.5	4.4	1.8	3.7
April	.4	.6	2.0	5.6	5.1	2.9	7.5
May	1.2	1.1	5.3	5.4	4.0	1.2	5.9
June	1.2	1.0	5.0	5.7	3.9	3.7	10.3
July	2.2	2.8	4.8	5.6	4.9	5.2	7.8
August	1.3	1.7	3.8	4.8	4.4	4.3	5.0
September	1.4	.9	2.4	4.0	4.5	4.7	7.7
October	1.8	1.6	3.3	4.5	5.0	4.9	9.4
November	2.0	1.4	3.1	4.8	5.2	4.0	10.4
December	2.4	1.2	1.7	4.2	5.6	3.6	11.4
Yearly Average	1.8	1.7	3.6	4.9	4.6	3.4	7.1

Source: Original Data.